

REMARKS/ARGUMENTS

Priority

The present application claims subject matter disclosed in prior Application No. 60/405,703 filed 8/26/2002. The reference to this prior application upon which the present application claims priority was previously submitted, namely in the originally filed declaration, and this within the time period set forth in 37 CFR 1.78(a). However, this priority claim was not included in the first sentence of the specification.

The information concerning the domestic priority benefit claim was recognized by the Office, as shown by its inclusion on the first filing receipt mailed 09/27/2005. Accordingly no petition under 37 CFR 1.78(a) or surcharge under 37 CFR 1.17(t) is required.

The required reference to the prior application is being hereby submitted by amending the first sentence of the specification to include a reference to Application No. 60/405,703 filed 8/26/2002, upon which the present application claims priority.

Specification

The Abstract of the disclosure as filed was objected to for failing to commence on a separate sheet in accordance with 37 CFR 1.52(b)(4). The Abstract has been hereby amended such as to begin on a separate sheet and is believed to overcome the objection in this regard.

Claim Rejections – 35 USC §102

Claims 1, 2 and 4-12 were rejected under 35 USC 102(b) as being anticipated by Sahay et al. (US 5,824,085). Withdrawal of the rejection in this regard is respectfully anticipated in view of the following.

With respect to claim 1, the Examiner alleges that Sahay discloses all elements of the claimed apparatus for planning a surgery, including the claimed element of “a positioning module adapted to calculate a position of a first of said virtual implants with respect to a second of said virtual implants and allow the user to align said first and second virtual implants with respect to each other”. With respect, this is not the case.

The Examiner points to column 11, lines 52-56, and column 13, lines 30-33, of Sahay in support of the allegation that this claim element is disclosed by Sahay. However, Sahay in fact fails to teach at least this feature of the claimed apparatus. Sahay describes at the locations identified by the Examiner that a cavity model 310 can be incorporated into the bone model to determine an optimum prosthesis size and shape, and a reasonable initial location for automatic placement of the prosthesis within the bone (col. 11, lines 52-56). Sahay provides also that once the suitable dimensions of the implants have been calculated, the surgeon may then determine a fit

criteria for each implant from the anterior/posterior and medial/lateral views (col. 13, lines 30-33).

Sahay models a bone cavity (ex: in a femur) and then determines the optimal prosthesis size and shape to fit within this cavity. Sahay therefore merely teaches the process of creating a bone model having a cavity therein, and determining a suitable size and shape of a single prosthesis, as well as a suitable location of the prosthesis on the bone, based on this bone model. Sahay however fails to teach a positioning module which calculates a position of a *first* virtual implant relative to a *second* virtual implant, such as to be able to subsequently align the two virtual implants relative to each other.

Although Sahay's virtual implant can be selected from a database of a number of possible implant sizes/shapes, Sahay never teaches modelling *two separate virtual implants* - located at two different positions and possibly on two different bones - nor that the position of a first of these virtual implants is calculated with respect to a second one of the virtual implants, as per the presently claimed apparatus and method.

For at least the above reasons, Sahay fails to teach each and every element of independent claim 1, and thus claim 1 is novel over Sahay.

Claims 2 and 4-12 are believed to be novel over Sahay for the reasons set out above and at least in view of their dependence on claim 1. However, the subject matter of claims 2 and 4-12 is additionally believed to be independently novel over Sahay.

With particular reference to claim 2, for example only, the presently claimed position module is said to be adapted to calculate a position by determining how well the virtual implants fit along a curve representing an interconnecting member for the virtual implants. Although the Examiner alleges that Sahay discloses this claimed element at column 12, lines 53-60, and column 13, lines 30-33, this is not in fact the case.

Sahay discloses that an optimal implant size will be determined so that the surgeon may select an optimal prosthesis from a library of available prostheses. This optimal implant *size* is said by Sahay to be preferably based on a "fit criteria" (col. 12, line 57). The Examiner therefore appears to equate Sahay's "fit criteria" with the above-mentioned claimed element, however Sahay uses this fit criteria in order to determine an optimal implant size, but fails to teach or suggest a positioning module that is capable of calculating relative positions of two different implants, and this by determining how well these two different implants fit along a curve, the curve representing a physical interconnecting member (such as a rod that interconnects two spinal implants, for example) disposed between the two implants. Sahay's fit criteria used to determine the optimal size of a single implant based on a library of possible implant sizes, clearly fails to teach or suggest this feature of the presently claimed apparatus/method.

In view of the above, claims 1, 2 and 4-12 are novel over the teachings of Sahay, and therefore withdrawal of the rejection thereto under 35 USC 102(b) is respectfully anticipated.

Claim Rejections – 35 USC §103

Claims 3, 14-18 and 21-24 were rejected under 35 USC 103(a) as being unpatentable over Sahay in view of Foley et al. (US 6,434,415). Reconsideration of the rejection in this regard is respectfully requested in view of the following.

For the reasons set out above, Sahay fails to teach all elements of independent claims 1 and 14. Foley '415 fails to make up for the above-noted deficiencies of Sahay.

Foley '415 is cited because the Examiner admits that Sahay is directed toward long bone orthopaedic surgery and thus does not teach a spinal surgery procedure which includes a number of virtual spinal implants, and thus Foley is relied upon to support the allegation that the combined teachings of Foley '415 and Sahay would render obvious the above-mentioned claims. With respect, simply because Foley describes a system which is used in connection with spinal surgery, this does not mean that the combined teachings of Foley '415 and Sahay teach or suggest all elements of the claimed method as recited in claim 14.

Foley '415 discloses a system for use in displaying images of a body part, such as a spine having a number of vertebral bodies. However, Foley '415 does not, contrary to the allegation of the Examiner, teach at least "a positioning module adapted to calculate a position of a first of said virtual implants with respect to a second of said virtual implants and allow the user to align said first and second virtual implants with respect to each other".

The Examiner points to column 2, lines 45-48, and column 5, lines 32-58, of Foley '415 in support of the allegation that this claim element is known. However, Foley merely discloses at the above locations that relative positions of body elements can be determined by the system, and that a pre-procedural image data set of the real bone elements can be used to register the intra-procedural position of the same real bone elements using a localizer. This may be achieved, for example, by providing tracking members on each of the vertebral bodies. This is not equivalent to calculating a position of a first *virtual* implant relative to a second *virtual* implant such as to *align* these *two virtual implants* with respect to each other. Foley '415 fails to teach or suggest at least this element of the claimed apparatus and method.

With further reference to claim 14, both Sahay and Foley '415 also fail to teach or suggest at least the step of determining a desired curve along which the two spinal implants are to be placed and representing the curve on the image of the patient's anatomy. Additionally, Foley '415 also fails to teach or suggest the step of placing the at least two virtual implants on the desired curve in the image by aligning the two virtual implants with the curve while taking into account a position of a preceding

virtual implant to place a subsequent virtual implant, for the same reasons as set out above with respect to Sahay.

Accordingly, the combined teachings of Sahay and Foley '415 fail to disclose each and every element of independent claim 14 for the reasons set out above. Similarly, Sahay and Foley '415 also fail to teach or suggest all elements of dependent claims 3, 15-18 and 21-24.

Claims 3, 14-18 and 21-24 are therefore believed to be novel and non-obvious over Sahay and Foley '415, and thus reconsideration of the rejection thereof under 35 USC 103(a) is respectfully anticipated.

Claims 19-20 were also rejected under 35 USC 103(a) as being unpatentable over Sahay and Foley '415 et al. in further view of Foley et al. (US 6,226,548). Reconsideration of the rejection in this regard is respectfully requested in view of the following.

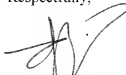
Foley '548 fails to make up for the above-noted deficiencies of the Sahay and Foley '415 references. Namely, Foley '548 also fails to teach or suggest at least the steps of determining a desired curve along which the two spinal implants are to be placed and representing the curve on the image of the patient's anatomy, and placing the at least two virtual implants on the desired curve in the image by aligning the two virtual implants with the curve while taking into account a position of a preceding virtual implant to place a subsequent virtual implant.

For these reasons and at least in view of their dependence on independent claim 14, claims 19-20 are also believed to be both novel and non-obvious over the combined teachings of Sahay, Foley '415 and Foley '548.

Reconsideration of all rejections raised under 35 USC 103(a) is therefore respectfully anticipated.

The application is believed to be in condition for allowance.

Respectfully,



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